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(Reaffirmed 1995)

Indian Standard

CODE OF PRACTICE FOR STEEL TUBULAR SCAFFOLDING

PART I DEFINITIONS AND MATERIALS

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

*Indian Standard***CODE OF PRACTICE FOR
STEEL TUBULAR SCAFFOLDING****PART I DEFINITIONS AND MATERIALS**

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*Indian Standard***CODE OF PRACTICE FOR
STEEL TUBULAR SCAFFOLDING****PART I DEFINITIONS AND MATERIALS****0. FOREWORD**

0.1 This Indian Standard (Part I) was adopted by the Indian Standards Institution on 31 March 1967, after the draft finalized by the Structural Engineering Sectional Committee had been approved by the Structural and Metals Division Council and the Civil Engineering Division Council.

0.2 With the heavy construction programme envisaged, the importance of the use of modern scaffolding cannot be over-emphasized. An Indian Standard (*see* IS: 2750-1964*) covering scaffolding in general has been published. Steel tubular scaffolding is one of the modern types of scaffolding which can be assembled quickly, transported and handled easily. It can be dismantled rapidly and re-used, and is therefore relied on for long service and life. The Sectional Committee felt that a separate code of practice covering particularly steel scaffolding should be formulated.

0.3 This code of practice being published in four parts is intended to act as a guide for the construction and use of scaffolds and other structures of tubular scaffolding material normally used in construction, maintenance, repair and demolition work and enables persons to obtain access to, and egress from and to perform work, or which enables materials to be taken to any place at which such work is performed.

0.4 In the preparation of this standard, the Sectional Committee kept in view the manufacturing and trade practices followed in the country in this field.

1. SCOPE

1.1 This code (Part I) covers common definitions and general guidance in regards to selection of materials for tubular scaffoldings.

1.2 It does not cover suspended or slung scaffoldings and scaffoldings constructed from materials other than steel.

*Specification for steel scaffoldings.

2. TERMINOLOGY

2.0 For the purpose of this code, the following definitions shall apply.

2.1 Base Dimensions — Dimensions of the smallest rectangle enclosing the base of a tripod or trestle.

2.2 Base Plate — A plate for distributing the load from an upright or raker.

2.3 Adjustable Base Plate — A base plate embodying means of vertical adjustment.

2.4 Bay — The space between the centre lines of two adjacent standards along the face of the scaffold.

2.5 Beam — A horizontal member supporting a vertical load.

2.6 Board Bearer — A tube spanning across ledgers or from ledger to the wall of a building which may have a loose or attached coupler for the purpose of securing such tube or member to a ledger, and which may have a specially formed end (may be detachable) for the purpose of fixing into brickwork; and used between transoms or putlogs for the purpose of supporting scaffold boards at positions and spacings required.

2.7 Brace — A tube incorporated diagonally in a scaffolding for stability.

2.8 Bridle — A horizontal tube slung between putlogs for the purpose of supporting intermediate putlogs where due to window openings and the like it is impossible to support a putlog in the wall.

2.9 Castor — A swivelling wheel attached to the lower end of a tubular column for the purpose of moving and supporting scaffolding.

2.10 Coupler — A fitting by which a grip is applied to the external surfaces of two tubes and which thereby holds them together.

2.11 Coupler, Double (Right Angled) — A coupler for connecting a tube at right angle.

2.12 Coupler Putlog — A non-load bearing coupler used for fixing a putlog or transom to a ledger.

2.13 Coupler, Sleeve — A coupler for connecting two tubes end to end.

2.14 Coupler, Swivel — A coupler for connecting two tubes at any angle other than a right angle.

2.15 Guard Rail or Handrail — A member incorporated in the structure at all points from where an operative may fall.

2.16 Independent Scaffold — The scaffolding supported on two rows of standards (uprights), independent of the structure under construction but securely supported against collapse with the help of proper strutting or bracing and rigidly connected with the building or other structure unless so designed to ensure stability without such connection.

2.17 Individual Component Type Scaffold — Independent or putlog scaffold consisting of an assembly of individual tubes and fittings.

2.18 Joint Pin — An internal fitting for jointing two tubes end to end.

2.19 Ledger — A tube spanning horizontally and tying a scaffold longitudinally, which may act as a support for putlogs or transoms.

2.20 Lift — The height from the ground or floor to the lowest ledger or the vertical distance between any two adjacent ledgers.

2.21 Puncheon — A vertical tube supported otherwise than upon the ground or a base plate.

2.22 Purchaser — The person receiving the assembled scaffold or separate components of scaffolds, whether by sale or on hire.

2.23 Putlog — A tube or other member spanning from a ledger to the wall of a building and which may have a specially formed end (may be detachable) for the purpose of fixing into the brickwork.

2.24 Putlog End — The specially formed end of a putlog or fitting to be attached to a tube, for locating the member in a joint of a wall.

2.25 Putlog Scaffold — The scaffolding supported by single row of uprights in combination with load bearing parts of the structure.

2.26 Raker — An inclined tube having a bearing on the ground or on an adjacent structure or if carrying a portion of the projecting scaffolding being connected to a horizontal member of the scaffold at a lower level.

2.27 Reveal Pin — A fitting used for tightening a reveal tie between two opposing surfaces.

2.28 Reveal Tie — A tube which is jacked (wedged) between two opposing surfaces, for example, window reveal (opening) to tie a scaffold to a building.

2.29 Scaffold, Catching — Scaffold used to protect those working on floors or roofs against falling down, and also to stop building materials and tools from falling.

2.30 Scaffolds, Cantilever or Jib — Cantilever scaffolds are those scaffolds which stick out from the masonry work like a cantilever. Simple cantilever scaffolds are those which are not additionally supported from the masonry work.

Jib scaffolds are those types of cantilever scaffolds which are additionally supported by a brace which may be in tension or compression. The brace transmits the load on to the masonry work.

2.31 Scaffold, Figure or Bracket — Light cantilever working scaffold, which is fixed to the masonry work with the help of fixing accessories, for example, dogs, spikes, etc.

2.32 Scaffold, Slung — A scaffold structure suspended at a height by means of wire ropes, chains or rigid members from a permanent structure or building and intended for the support of a working platform.

2.33 Scaffolding — A temporary structure on which persons work, providing support for the plant and materials used in building, constructional, maintenance, repair and demolition work.

2.34 Sole Plate — A timber or other member of adequate size and suitable quality used to distribute the load from the base plate to the ground.

2.35 Spigot — An alternative term for a joint pin (also a part of it).

2.36 Staging — A temporary structure on which persons work, sometimes mounted on casters and formed from prefabricated frames.

2.37 Standard or Upright — A tube used as a vertical support or column in the construction of a scaffold and transmitting a load to the ground or a base plate.

2.38 Supplier — The person selling or hiring the assembled scaffold or separate components of scaffold.

2.39 Tie Tube — A tube used to connect a scaffold to a reveal tie or other rigid anchorage.

2.40 Toe Board Clip — A clip used for attaching toe boards to scaffolding members.

2.41 Transom — A tube spanning across ledgers to tie a scaffold transversely and which may also support a working platform.

2.42 Trestle — A self-supporting stand made out of rolled steel sections or steel tubular sections and incorporating one or more horizontal beams on which a working platform may be laid.

2.43 Tripod — A self-supporting metal stand with three legs for supporting one end of a horizontal beam on which a working platform may be laid.

2.44 Unit Frame — A metal stand, not self-supporting, incorporating or supporting a platform or one or more horizontal beams on which a working platform may be laid.

2.45 Unit Frame Type Scaffold — Independent or putlog scaffold consisting of an assembly of prefabricated frames suitably connected or fitted and used in combination with or without individual tubes.

3. MATERIAL

3.1 Scaffolding Tubes — Steel tubes used in tubular scaffolding coming within the purview of this code shall generally be 40 mm nominal bore heavy class and of grade YSt 22 specified in IS:1161-1963*. Scaffolding tubes shall also satisfy the requirements of IS: 2750-1964†.

3.2 Steel Fittings — Manufacturing requirements of scaffolding fittings shall be in accordance with IS: 2750-1964†.

3.3 Timber used for scaffolding shall be of suitable quality, be in good condition, have the bark completely stripped off and shall not be so painted or treated in any way that the defects are difficult to be seen.

3.4 No defective material or part, which may not be satisfactorily repaired, shall be used for a scaffold. Defective parts or materials which may be satisfactorily repaired shall not be used until they are so repaired.

3.5 No rope which is defective whether through contact with an acid or other corrosive substance or otherwise shall be used.

4. CARE OF MATERIAL

4.1 The maintenance of tube and fittings used in the construction of metal scaffolds is of paramount importance.

4.2 Steel Tubes — Atmospheric corrosion of untreated steel may be high particularly in certain industrial or coastal areas. Steps should be taken to combat corrosion by means of varnishing, painting, metallization of the external surface of the tubes, hot-dip galvanizing or other means.

4.2.1 In marine conditions where the scaffolding is in close proximity to the sea or is partly or wholly immersed in water for periods exceeding one week, external surface of tubes shall be effectively protected with paint. One coat of paint will normally suffice for short periods of service, additional coats are necessary for semi-permanent work.

4.3 Straightening and Cleaning of Tube

4.3.1 Wherever possible, cleaning of tubes should be carried out by scraping, brushing or other abrasive methods which do not affect any surface treatment, such as galvanizing.

4.3.2 Straightening should only be carried out under competent supervision with the minimum of straining. Where the section of the tube is deformed through bending, this shall be cut out.

*Specification for steel tubes for structural purposes.

†Specification for steel scaffoldings.

4.3.3 Work hardening and consequent tendency to brittleness occurs during each bending or straightening operation; therefore, such operations should be avoided whenever possible, unless they are capable of being carried out hot, or the tube subsequently heat-treated.

4.4 Scaffold Fittings — Fittings generally shall be examined regularly while in store, and care taken that moving parts are sound and well lubricated to ensure easy and positive movement. Heat shall not be applied under any circumstances except by the manufacturers.

4.4.1 Particular care is necessary after any treatment involving deposit of material, such as sherardizing to ensure that threads have retained their shape and size.

4.5 Storage — Tubes and fittings should not be stored in contact with cement or lime. In damp conditions prolonged contact with cement or lime mortars, concrete or absorbent building materials is undesirable.

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